

Claims:

1 <sup>Sub</sup> 1. A method for determining cell/sector pair radio  
2 frequency isolation values in a cellular wireless  
3 communication system, the method comprising:  
4 transmitting on a broadcast channel in a broadcast  
5 cell/sector;  
6 disabling transmissions on the broadcast channel in  
7 neighboring cells/sectors;  
8 directing a plurality of mobile stations operating  
9 within the cellular wireless communication system to measure  
10 the strength of the broadcast channel and to measure the  
11 strength of respective serving traffic channels;  
12 receiving the measured strengths of the broadcast  
13 channel and respective serving traffic channels from the  
14 plurality of mobile stations; and  
15 using the measured strengths of the broadcast channel  
16 and respective serving traffic channels to determine  
17 cell/sector pair radio frequency isolation values.

1 2. The method of claim 1, further comprising disabling  
2 adjacent channels in the broadcast cell/sector.

1 3. The method of claim 1, further comprising disabling  
2 adjacent channels in at least some of the neighboring  
3 cells/sectors.

1 4. The method of claim 1, further comprising:  
2 normalizing a measured strength of the broadcast channel  
3 to produce a normalized broadcast channel signal strength;  
4 calculating a cell/sector pair radio frequency isolation  
5 value using the normalized broadcast channel signal strength  
6 and a measured strength of the serving traffic channel.

1 5. The method of claim 1, further comprising:  
2 repeating the previous steps for a plurality of  
3 cell/sectors in the cellular wireless communication system to  
4 produce a plurality of measured cell/sector pair radio  
5 frequency isolation values; and  
6 processing the plurality of measured cell/sector pair  
7 radio frequency isolation values to create an isolation  
8 matrix.

1 Sub A1 6. The method of claim 1, wherein directing a  
2 plurality of mobile stations operating within the cellular  
3 wireless communication system to measure the strength of the  
4 broadcast channel and to measure the strength of respective  
5 serving traffic channels comprises issuing a mobile assisted  
6 handoff message to the plurality of mobile stations.

1           7. The method of claim 1, wherein directing a  
2 plurality of mobile stations operating within the cellular  
3 wireless communication system to measure the strength of the  
4 broadcast channel and to measure the strength of respective  
5 serving traffic channels comprises issuing a mobile assisted  
6 channel assignment message to the plurality of mobile  
7 stations.

1           8. The method of claim 1, wherein directing a  
2 plurality of mobile stations operating within the cellular  
3 wireless communication system to measure the strength of the  
4 broadcast channel and to measure the strength of respective  
5 serving traffic channels includes limiting such direction to  
6 mobile stations operating within a distance of the broadcast  
7 cell/sector.

1           9. A system-engineering server operating in  
2 conjunction with a cellular wireless communication system,  
3 the system-engineering server comprising:

4           a processor;

5           memory coupled to the processor;

6           an interface coupled to the processor that allows the  
7 system-engineering system server to interact with the  
8 cellular wireless communication system; and

9           the memory storing a plurality of instructions, the  
10 plurality of instructions comprising:

11           a plurality of instructions that, upon execution by

12 the processor, cause the cellular wireless communication  
13 system to transmit on a broadcast channel in a broadcast  
14 cell/sector;

15 a plurality of instructions that, upon execution by  
16 the processor, cause the cellular wireless communication  
17 system to disable transmissions on the broadcast channel in  
18 neighboring cells/sectors;

19 a plurality of instructions that, upon execution by  
20 the processor, cause the cellular wireless communication  
21 system to direct a plurality of mobile stations operating  
22 within the cellular wireless communication system to measure  
23 the strength of the broadcast channel and to measure the  
24 strength of respective serving traffic channels;

25 a plurality of instructions that, upon execution by  
26 the processor, cause the cellular wireless communication  
27 system to receive the measured strengths of the broadcast  
28 channel and respective serving traffic channels from the  
29 plurality of mobile stations; and

30 a plurality of instructions that, upon execution by  
31 the processor, cause the cellular wireless communication  
32 system to use the measured strengths of the broadcast channel  
33 and respective serving traffic channels to determine  
34 cell/sector pair radio frequency isolation values

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1 10. The system-engineering server of claim 9, further  
2 comprising a plurality of instructions that, upon execution  
3 by the processor, cause the cellular wireless communication

4 system to disable adjacent channels in the broadcast  
5 cell/sector.

1 11. The system-engineering server of claim 9, further  
2 comprising a plurality of instructions that, upon execution  
3 by the processor, cause the cellular wireless communication  
4 system to disable adjacent channels in at least some of the  
5 neighboring cells/sectors.

1 12. The system-engineering server of claim 9, further  
2 comprising, for measurements taken in a particular cell other  
3 than the broadcast cell:

4 a plurality of instructions that, upon execution by the  
5 processor, cause the cellular wireless communication system  
6 to normalize a measured strength of the broadcast channel  
7 to produce a normalized broadcast channel signal strength;

8 a plurality of instructions that, upon execution by the  
9 processor, cause the cellular wireless communication system  
10 to calculate a cell/sector pair radio frequency isolation  
11 value using the normalized broadcast channel signal strength  
12 and a measured strength of the serving traffic channel.

1 13. The system-engineering server of claim 9, further  
2 comprising:

3 a plurality of instructions that, upon execution by the  
4 processor, cause the cellular wireless communication system  
5 to repeat the previous operations for a plurality of

6 cell/sectors in the cellular wireless communication system to  
7 produce a plurality of measured cell/sector pair radio  
8 frequency isolation values; and

9 a plurality of instructions that, upon execution by the  
10 processor, cause the cellular wireless communication system  
11 to process the plurality of measured cell/sector pair radio  
12 frequency isolation values to create an isolation matrix.

1 14. The system-engineering server of claim 9, wherein  
2 directing a plurality of mobile stations operating within the  
3 cellular wireless communication system to measure the  
4 strength of the broadcast channel and to measure the strength  
5 of respective serving traffic channels comprises issuing a  
6 mobile assisted handoff message to the plurality of mobile  
7 stations.

1 15. The system-engineering server of claim 9, wherein  
2 directing a plurality of mobile stations operating within the  
3 cellular wireless communication system to measure the  
4 strength of the broadcast channel and to measure the strength  
5 of respective serving traffic channels comprises issuing a  
6 mobile assisted channel assignment message to the plurality  
7 of mobile stations.

1 16. The system-engineering server of claim 9, wherein  
2 directing a plurality of mobile stations operating within the  
3 cellular wireless communication system to measure the

4 strength of the broadcast channel and to measure the strength  
5 of respective serving traffic channels includes limiting such  
6 direction to mobile stations operating within a distance of  
7 the broadcast cell/sector.

1 17. A computer readable medium that stores a plurality  
2 of software instructions that, when executed by a computer  
3 interfacing with a cellular wireless communication system,  
4 causes the cellular wireless communication system to  
5 determining cell/sector pair radio frequency isolation, the  
6 computer readable medium comprising:

7 a plurality of instructions that, upon execution by the  
8 computer, cause the cellular wireless communication system to  
9 transmit on a broadcast channel in a broadcast cell/sector;

10 a plurality of instructions that, upon execution by the  
11 computer, cause the cellular wireless communication system to  
12 disable transmissions on the broadcast channel in neighboring  
13 cells/sectors;

14 a plurality of instructions that, upon execution by the  
15 computer, cause the cellular wireless communication system to  
16 direct a plurality of mobile stations operating within the  
17 cellular wireless communication system to measure the  
18 strength of the broadcast channel and to measure the strength  
19 of respective serving traffic channels;

20 a plurality of instructions that, upon execution by the  
21 computer, cause the cellular wireless communication system to  
22 receive the measured strengths of the broadcast channel and

23 respective serving traffic channels from the plurality of  
24 mobile stations; and

25 a plurality of instructions that, upon execution by the  
26 computer, cause the cellular wireless communication system to  
27 use the measured strengths of the broadcast channel and  
28 respective serving traffic channels to determine cell/sector  
29 pair radio frequency isolation values

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1 18. The computer readable medium of claim 17, further  
2 comprising a plurality of instructions that, upon execution  
3 by the computer, cause the cellular wireless communication  
4 system to disable adjacent channels in the broadcast  
5 cell/sector.

1 19. The computer readable medium of claim 17, further  
2 comprising a plurality of instructions that, upon execution  
3 by the computer, cause the cellular wireless communication  
4 system to disable adjacent channels in at least some of the  
5 neighboring cells/sectors.

1 20. The computer readable medium of claim 17, further  
2 comprising:

3 a plurality of instructions that, upon execution by the  
4 computer, cause the cellular wireless communication system to  
5 normalize a measured strength of the broadcast channel to  
6 produce a normalized broadcast channel signal strength;

7 a plurality of instructions that, upon execution by the



8 computer, cause the cellular wireless communication system to  
9 calculate a cell/sector pair radio frequency isolation value  
10 using the normalized broadcast channel signal strength and a  
11 measured strength of the serving traffic channel.

1 21. The computer readable medium of claim 17, further  
2 comprising:

3 a plurality of instructions that, upon execution by the  
4 computer, cause the cellular wireless communication system to  
5 repeat the previous steps for a plurality of cell/sectors in  
6 the cellular wireless communication system to produce a  
7 plurality of measured cell/sector pair radio frequency  
8 isolation values; and

9 a plurality of instructions that, upon execution by the  
10 computer, cause the cellular wireless communication system to  
11 process the plurality of measured cell/sector pair radio  
12 frequency isolation values to create an isolation matrix.

1 22. The computer readable medium of claim 17, wherein  
2 directing a plurality of mobile stations operating within the  
3 cellular wireless communication system to measure the  
4 strength of the broadcast channel and to measure the strength  
5 of respective serving traffic channels comprises issuing a  
6 mobile assisted handoff message to the plurality of mobile  
7 stations.

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1           23. The computer readable medium of claim 17, wherein  
2 directing a plurality of mobile stations operating within the  
3 cellular wireless communication system to measure the  
4 strength of the broadcast channel and to measure the strength  
5 of respective serving traffic channels comprises issuing a  
6 mobile assisted channel assignment message to the plurality  
7 of mobile stations.

1           24. The computer readable medium of claim 17, wherein  
2 directing a plurality of mobile stations operating within the  
3 cellular wireless communication system to measure the  
4 strength of the broadcast channel and to measure the strength  
5 of respective serving traffic channels includes limiting such  
6 direction to mobile stations operating within a distance of  
7 the broadcast cell/sector.

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